

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 08-116520

(43)Date of publication of application : 07.05.1996

(51)Int.Cl.

H04N 7/08
H04N 7/081
H04N 5/76
H04N 5/91

(21)Application number : 06-250741

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(22)Date of filing : 17.10.1994

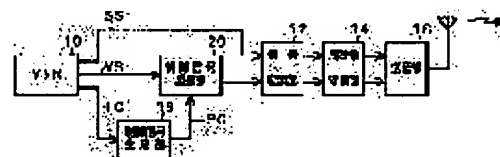
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(54) TELEVISION BROADCAST EQUIPMENT AND TELEVISION RECEIVER

(57)Abstract:

PURPOSE: To print out a prescribed image on a print paper by sending a print control signal used to print out a prescribed image for a receiver side while being superimposed on a television signal (video signal or audio signal).

CONSTITUTION: When a time code TC outputted from a VTR 10 is matched with a code value set by a control signal generating section 18, the generating section 18 outputs a print control signal PC. Then a control signal superimposing section 20 superimposes the signal PC outputted from the generating section 18 onto a signal for a vertical blanking period of a video signal VS. That is, the code value of the generating section 18 is set so that the signal PC is generated in a timing the signal is superimposed on a signal for the vertical blanking period appearing just before the video image desired to be printed out at the receiver side. Thus, a television signal comprising an audio signal SS and the signal VS with the signal PC superimposed thereon is outputted from a television broadcast equipment. The receiver prints out an image for one pattern onto a print paper based on the received data.



LEGAL STATUS

[Date of request for examination] 22.04.1997

[Date of sending the examiner's decision of rejection] 05.12.2000

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection] 2000-20605

[Date of requesting appeal against examiner's decision of rejection] 27.12.2000

[Date of extinction of right]

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CLAIMS

[Claim(s)]

[Claim 1] In television broadcasting equipment equipped with a TV signal generation means to generate the TV signal which consists of a video signal and a sound signal, and a transmitting means to modulate the TV signal generated with this TV signal generation means, and to transmit A control signal generation means to generate the print control signal for directing a print, Television broadcasting equipment characterized by establishing a control signal addition means to make equivalent to either the video signal which constitutes the above-mentioned TV signal, or a sound signal the video signal of the screen which should be printed, and to superimpose the above-mentioned print control signal on it.

[Claim 2] It is the television receiving set which receives the TV signal which television broadcasting equipment according to claim 1 sends out, restores to this TV signal to a predetermined video signal and a predetermined sound signal, and reproduces an image and voice. A control signal extract means to extract a print control signal from the above-mentioned video signal to which it received and restored, or the above-mentioned sound signal, A storage means to memorize the above-mentioned video signal for one screen corresponding to this print control signal if this control signal extract means extracts a print control signal, The television receiving set characterized by having a data-conversion means to change into the data suitable for printing the above-mentioned video signal memorized by this storage means, and a print means to print the data changed with this data-conversion means on the predetermined detail paper.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the television receiving set on which a desired image can be made to print by the receiving side, and the suitable television broadcasting equipment for this.

[0002]

[Description of the Prior Art] Conventionally, the equipment which prints out a desired television screen according to actuation of a viewer is known. This equipment is TV shopping etc., and if it prints out that screen when an application place etc. is displayed on a screen, it is not necessary to make a note of it one by one, and, moreover, it can record those contents correctly.

[0003]

[Problem(s) to be Solved by the Invention] however, when the television screen is always seen and required information is displayed on a screen with this equipment If it must be immediately operated for print-out, for example, a seat is removed by the telephone, a visitor, etc. There were a problem of it becoming impossible to acquire required information and a problem required information is not not only acquired, but that a screen will change and an unnecessary screen will be printed if the timing of actuation is overdue.

[0004] The equipment which separates and prints out the facsimile signal on which the facsimile signal was superimposed on the TV signal and it was superimposed by the receiving side, and the receiving set of the so-called facsimile broadcasting are also known for one side as indicated by JP,60-203063,A, for example.

[0005] If a television station side transmits all required information with a facsimile signal when this equipment is used for TV shopping etc., by preparing the facsimile receiver, a viewer can print out the information which the television station prepared and can leave it to record.

[0006] However, this equipment did not print the same image as a television screen using the video signal, but the television station side had to prepare two kinds of signals of a video signal and a facsimile signal, and the video signal had the problem of taking time and effort in order to print using the facsimile signal prepared independently.

[0007] This invention aims at offering television broadcasting equipment with possible making the screen where required information was displayed print on a receiving side certainly, and a television receiving set, in order to solve the above-mentioned trouble.

[0008]

[Means for Solving the Problem] Invention according to claim 1 made in order to attain the above-mentioned purpose In television broadcasting equipment equipped with a TV signal generation means to generate the TV signal which consists of a video signal and a sound signal, and a transmitting means to modulate the TV signal generated with this TV signal generation means, and to transmit A control signal generation means to generate the print control signal for directing a print, It is characterized by establishing a control signal addition means to make equivalent to either the video signal which constitutes the above-mentioned TV signal, or a sound signal the video signal of the screen which should be printed, and to superimpose the above-mentioned print control signal on it.

[0009] Moreover, invention according to claim 2 receives the TV signal which television broadcasting equipment according to claim 1 sends out. A control signal extract means to extract a print control signal from the above-mentioned video signal to which is the television receiving set which restores to this TV signal to a predetermined video signal and a predetermined sound signal, and reproduces an image and voice, and it received and restored, or the above-mentioned sound signal, A storage means to memorize the above-mentioned video signal for one screen corresponding to this print control signal if this this control signal extract means extracts a print control signal, It is characterized by having a data-conversion means to change into the data suitable for printing the above-mentioned video signal memorized by this storage means, and a print means to print the data changed with this data-conversion means on the predetermined recording paper.

[0010]

[Function] In the television broadcasting equipment according to claim 1 constituted as mentioned above, the TV signal with which a TV signal generation means consists of a video signal and a sound signal is generated, and, on the other hand, a control signal generation means generates the print control signal for directing a print to the receiving side of a TV signal. And a control signal addition means makes equivalent to either the video signal which constitutes a TV signal, or a sound signal the video signal of the screen which should be printed, and superimposes a print control signal on it. And a transmitting means modulates the TV signal with which it did in this way and was superimposed on the print control signal, and is transmitted.

[0011] Moreover, in a television receiving set according to claim 2, the TV signal which television broadcasting equipment according to claim 1 transmits is received, it restores to this TV signal to a predetermined video signal and a predetermined sound signal, and an image and voice are reproduced. If a control signal extract means extracts a print control signal from the video signal to which it restored, or a sound signal at this time, when a storage means incorporates and memorizes the video signal for one screen corresponding to a print control signal, and a data-conversion means changes this memorized video signal into the data suitable for printing and will supply it to a print means, a print means prints the changed data on the predetermined recording paper.

[0012] That is, by making television broadcasting equipment correspond to the video signal of one predetermined screen, and superimposing a print control signal on a TV signal, by detecting the print control signal on which the TV signal was overlapped, a television receiving set incorporates the corresponding video signal for one predetermined screen, and prints it on the predetermined recording paper.

[0013]

[Example] The example of this invention is explained with a drawing below. The television broadcasting system of an example consists of television broadcasting equipment 2 which broadcasts various programs as shown in drawing 2, and many and unspecified television receiving sets 4 which receive the broadcast from television broadcasting equipment.

[0014] Among these, as television broadcasting equipment 2 is shown in drawing 3, the tape for broadcast into which the program was recorded on videotape and edited beforehand is played. With the video tape recorder (VTR) 10 which outputs the time code TC used for a sound signal SS, a video signal VS, edit, etc., the sound signal SS outputted from VTR10, and a video signal VS The subcarrier of a predetermined intermediate frequency, respectively FM modulation (in the case of a sound signal SS), and the signal modulation section 12 which carries out amplitude modulation (in the case of a video signal VS), The frequency-conversion section 14 which changes the modulated signal into predetermined transmit frequencies, The transmitting section 16 which compounds these signals after magnification, respectively and outputs from an antenna the sound signal SS changed into transmit frequencies, and a video signal VS, The control signal generation section 18 which will output the predetermined print control signal PC if in agreement with the code value to which the time code TC outputted from VTR10 was set beforehand, It is constituted by the control signal superposition section 20 which superimposes the print control signal PC which the control signal generation section 18 outputted on a video signal VS.

[0015] Thus, with the constituted television broadcasting equipment 2, if the tape for broadcast is played with VTR10 and a video signal VS and a sound signal SS are outputted from VTR10, after the signal for transmission becomes irregular and frequency conversion of these signals is carried out to the frequency for transmission, respectively, they will be amplified further, will be compounded and will be outputted from an antenna.

[0016] Predetermined code value is beforehand set to the control signal generation section 18 here, and if in agreement with the code value with which the time code TC which the tape for broadcast is played with VTR10, and is outputted from VTR10 was set as the control signal generation section 18, the control signal generation section 18 will output the print control signal PC. And the control signal superposition section 20 superimposes the print control signal PC which the control signal generation section 18 outputted on the part of the vertical blanking interval of a video signal VS.

[0017] That is, the code value of the control signal generation section 18 is set up so that the print control signal PC may be generated to timing on which it is superimposed at the vertical blanking interval which appears just before an image to make it print on a receiving side. Thereby, from television broadcasting equipment 2, the TV signal which consists of a video signal VS with which it was superimposed on the sound signal SS and the print control signal PC is outputted.

[0018] With the receive section 22 which, on the other hand, receives the TV signal from television broadcasting equipment 2 through an antenna as the television receiving set 4 is shown in drawing 1 While restoring to the frequency-conversion section 24 which changes the frequency of the received signal into an intermediate frequency, and the signal changed into the intermediate frequency The signal recovery section 26 divided into a sound signal SS and a video signal VS, and the voice playback section 28 which makes Loudspeaker SP pronounce the voice reproduced based on the sound signal SS to which it restored, The image reproduction section 30 which extracts a synchronizing signal SYN, a luminance signal, and a chrominance signal, respectively, and projects the image reproduced based on the these-extracted signal on Braun-tube DSP from the video signal VS to which it restored, The control signal extract section 32 which extracts the print control signal PC on which the video signal VS was overlapped, The control signal generating section 34 which generates the independent print control signal PCr according to external actuation of TV remote control etc., The circuit changing switch 36 which changes print control signal PC/PCr from the control signal extract section 32 or the control signal generating section 34 to arbitration by external actuation, and outputs it, The buffer 38 which incorporates and memorizes the video signal VS for one screen according to print control signal PC/PCr outputted through a circuit changing switch 36, It is constituted by the data-conversion section 40 which is beginning to read the video signal VS memorized by the buffer 38 one by one, and is changed into the data for a print, and the printer 42 which prints an image in a predetermined record form based on the data which the data-conversion section 40 outputs.

[0019] Here, if the control signal extract section 32 detects the vertical blanking interval of a video signal VS based on the synchronizing signal SYN extracted from a video signal VS in the video-signal playback section 30 and is superimposed on the print control signal PC at this vertical blanking interval, it will extract this print control signal PC, and will output it as a timing signal which operates a buffer 38.

[0020] Moreover, since the rate to which a video signal VS is sent is earlier than processing of the data-conversion section 40 and a printer 42, a buffer 38 is for absorbing this speed difference, and even when the print control signal PC occurs continuously, it has the storage capacity for two or more screens so that take a video signal VS and it may not be split.

[0021] Next, when the data-conversion section 40 interpolates or operates the scanning line and a pixel on a curtailed schedule, processing which increases or decreases the number of the scanning line and the number of pixels per 1 scanning line according to the specification of a printer 42 may be performed, after the video signal VS for one screen is incorporated by the buffer 38, actuation may be started, and a buffer 38 may operate in parallel with the actuation which incorporates a video signal VS.

[0022] Moreover, it is also possible whether a circuit changing switch 36 makes it an invalid whether to confirm the print control signal PC from the control signal extract section 32 and the print control signal PCr from the control signal generating section 34, that a setup is made independently possible, respectively and both are also confirmed and to also confirm only either, and to make both into an invalid further.

[0023] Thus, in the constituted television receiving set 4, the TV signal which the receive section 22 received through the antenna is changed into an intermediate frequency from transmit frequencies in the frequency-conversion section 24, and it separates into a

sound signal SS and a video signal VS in the signal recovery section 28 further, and restores to it. And while the voice playback section 28 reproduces voice based on the sound signal SS to which it restored and makes it pronounce from Loudspeaker SP, the image reproduction section 30 reproduces an image based on the video signal VS to which it restored, and projects on Braun-tube DSP.

[0024] If the control signal extract section 32 extracts the print control signal PC on which the video signal VS was overlapped at this time, or the control signal generating section 34 generates the print control signal PCr according to external actuation and one of print control signal PC/PCr is sent to a buffer 38 through a circuit changing switch 36, a buffer 38 will incorporate the video signal VS for one screen. Then, the data-conversion section 40 reads the video signal VS incorporated by the buffer 38 one by one, changes into the data suitable for a printer 42, and sends out to a printer 42. And a printer 42 prints the image for one screen on printing paper based on the sent data.

[0025] For example, in television broadcasting equipment 2, when broadcasting programs, such as TV shopping, from television broadcasting equipment 2, the code value of the control signal generation section 18 is set up so that it may be superimposed on the print control signal PC at the vertical-retrace-line period which appears just before the video signal VS of the part which generates the screen where the screen including the information with which a viewer should be provided, i.e., the image of an article, the name of an article, the price, the application place, etc. were displayed. And the tape for broadcast is played with VTR10, and a TV signal is sent out after superimposing the print control signal PC on a video signal VS.

[0026] If the circuit changing switch 36 is set up in the television receiving set 4 so that the print control signal PC from the control signal extract section 32 may be supplied to a buffer 38, whenever the print control signal PC will be detected on the other hand, without others also taking actuation of what, the image with which required information was automatically displayed from the printer 42 is printed out.

[0027] As mentioned above, as explained in full detail, in the television broadcasting system of this example, television broadcasting equipment 2 is made to print out one screen of an image by superimposing the print control signal PC on a video signal VS, transmitting, and extracting the print control signal PC from the received video signal VS in the television receiving set 4 by the printer 42 automatically.

[0028] Therefore, by according to this example, making the screen on which information to provide a viewer with television broadcasting equipment 2 was displayed correspond, and superimposing and sending out the print control signal PC to a video signal VS It can leave information to offer moreover to a viewer as record certainly, without being able to make the printer 42 of the television receiving set 4 print out the meant screen automatically, and troubling a viewer's hand.

[0029] Moreover, in this example, when the print control signal PC which is superimposed by the video signal VS and transmitted to it from television broadcasting equipment 2 with a circuit changing switch 36, and a viewer operate it, it can be made to do the print control signal PCr generated in arbitration in independently effective respectively or an invalid.

[0030] Therefore, when the print-out which followed the print control signal PC from television broadcasting equipment 2 is not needed, an unnecessary thing is not vainly printed by setting up so that a circuit changing switch 36 may be operated and the print control signal PC may become invalid.

[0031] Moreover, since arbitration can be made to generate the print control signal PCr when a viewer operates it, it cannot be based on the print control signal PC from television broadcasting equipment 2, but a desired image can be printed out. In this example, furthermore, the television receiving set 4 Since one screen which a broadcast side means can be incorporated correctly and can be printed out For example, by inserting the video signal VS for one screen which is completely unrelated to the image under broadcast, and making the television receiving set 4 print out this one inserted screen with television broadcasting equipment 2 It is also possible to provide a viewer with the screen (information) which is completely unrelated to the image to which it is viewed and listened. I am not noticed by the viewer who is looking at the image even if the image which is unrelated by one of screens of this is displayed, since it is got blocked, for example, the scan for 30 screens is performed per second on television of NTSC system.

[0032] As mentioned above, although one example of this invention was explained, this invention is not limited to the above-mentioned example, and can be carried out in various modes in the range which does not deviate from the summary of this invention. For example, in the above-mentioned example, although the print control signal PC is superimposed on the part of the vertical blanking interval of a video signal VS, it may superimpose on the part of the horizontal blanking interval of a video signal VS, or the channel for the subsond signals of sound multiplex broadcasting etc. may be used.

[0033] Moreover, in case the video signal VS and sound signal SS which play the tape for broadcast and are acquired in the above-mentioned example are transmitted as a TV signal, the time code TC outputted from VTR10 synchronizing with a video signal VS is used. Although the print control signal PC is superimposed on the video signal VS to the predetermined timing corresponding to a screen to make it print on a receiving side At the time of edit of the tape for broadcast, the print control signal PC is beforehand superimposed and recorded on the video signal VS. At the time of broadcast You may make it transmit the video signal VS and sound signal SS with which this tape for broadcast was superimposed on the print control signal PC reproduced and acquired as a TV signal as it is.

[0034] Furthermore, like the image transcription reservation of video to the television receiving set 4, the program reservation means for reserving the program which memorizes broadcasting hours and the channel of a program and is received is established, and it may be made to carry out auto-receipt of the TV signal of the program reserved based on the contents memorized for the program reservation means. In this case, if the TV signal which carried out auto-receipt is overlapped on the print control signal PC, since an image will also be automatically printed according to it, even if a viewer overlooks a program, he can get required information certainly.

[0035] Moreover, although the above-mentioned example explained the example which applied this invention to the television broadcasting system by which a TV signal is transmitted and received by wireless, cable television (CATV) etc. may be applied to the television broadcasting system by which a TV signal is transmitted and received by the cable.

[0036]

[Effect of the Invention] As explained above, in television broadcasting equipment according to claim 1, a TV signal (a video signal or sound signal) is overlapped on the print control signal for making a predetermined image print on a receiving side, and it is transmitted

to it. By, receiving the TV signal which television broadcasting equipment according to claim 1 transmits in a television receiving set according to claim 2 on the other hand, and extracting the print control signal on which the TV signal was overlapped, a corresponding video signal is incorporated and a predetermined image is printed on printing paper.

[0037] Therefore, if television broadcasting equipment and a television receiving set according to claim 2 according to claim 1 are used, the provider of a program can leave to a viewer certainly the screen where information to provide a viewer was displayed as record printed by printing paper, without troubling a viewer's hand.

[0038] Moreover, like equipment before, since required information is automatically printed in a television receiving set, when [at which hard copy of the screen is carried out by manual operation] required information copies out on a screen, the seat is removed, the timing to operate is bad, and does not go wrong [information cannot be incorporated, or], and, as for a viewer, information is acquired certainly.

[0039] Furthermore, since the image information for making it print on a television receiving set is using the video signal, it does not need to create the image information only for prints separately like facsimile broadcasting, and can offer information easily.

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TECHNICAL FIELD

[Industrial Application] This invention relates to the television receiving set on which a desired image can be made to print by the receiving side, and the suitable television broadcasting equipment for this.

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PRIOR ART

[Description of the Prior Art] Conventionally, the equipment which prints out a desired television screen according to actuation of a viewer is known. This equipment is TV shopping etc., and if it prints out that screen when an application place etc. is displayed on a screen, it is not necessary to make a note of it one by one, and, moreover, it can record those contents correctly.

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, in television broadcasting equipment according to claim 1, a TV signal (a video signal or sound signal) is overlapped on the print control signal for making a predetermined image print on a receiving side, and it is transmitted to it. By, receiving the TV signal which television broadcasting equipment according to claim 1 transmits in a television receiving set according to claim 2 on the other hand, and extracting the print control signal on which the TV signal was overlapped, a corresponding video signal is incorporated and a predetermined image is printed on printing paper.

[0037] Therefore, if television broadcasting equipment and a television receiving set according to claim 2 according to claim 1 are used, the provider of a program can leave to a viewer certainly the screen where information to provide a viewer was displayed as record printed by printing paper, without troubling a viewer's hand.

[0038] Moreover, like equipment before, since required information is automatically printed in a television receiving set, when [at which hard copy of the screen is carried out by manual operation] required information copies out on a screen, the seat is removed, the timing to operate is bad, and does not go wrong [information cannot be incorporated, or], and, as for a viewer, information is acquired certainly.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] however, when the television screen is always seen and required information is displayed on a screen with this equipment If it must be immediately operated for print-out, for example, a seat is removed by the telephone, a visitor, etc. There were a problem of it becoming impossible to acquire required information and a problem required information is not not only acquired, but that a screen will change and an unnecessary screen will be printed if the timing of actuation is overdue.

[0004] The equipment which separates and prints out the facsimile signal on which the facsimile signal was superimposed on the TV signal and it was superimposed by the receiving side, and the receiving set of the so-called facsimile broadcasting are also known for one side as indicated by JP,60-203063,A, for example.

[0005] If a television station side transmits all required information with a facsimile signal when this equipment is used for TV shopping etc., by preparing the facsimile receiver, a viewer can print out the information which the television station prepared and can leave it to record.

[0006] However, this equipment did not print the same image as a television screen using the video signal, but the television station side had to prepare two kinds of signals of a video signal and a facsimile signal, and the video signal had the problem of taking time and effort in order to print using the facsimile signal prepared independently.

[0007] This invention aims at offering television broadcasting equipment with possible making the screen where required information was displayed print on a receiving side certainly, and a television receiving set, in order to solve the above-mentioned trouble.

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MEANS

[Means for Solving the Problem] Invention according to claim 1 made in order to attain the above-mentioned purpose In television broadcasting equipment equipped with a TV signal generation means to generate the TV signal which consists of a video signal and a sound signal, and a transmitting means to modulate the TV signal generated with this TV signal generation means, and to transmit A control signal generation means to generate the print control signal for directing a print, It is characterized by establishing a control signal addition means to make equivalent to either the video signal which constitutes the above-mentioned TV signal, or a sound signal the video signal of the screen which should be printed, and to superimpose the above-mentioned print control signal on it.

[0009] Moreover, invention according to claim 2 receives the TV signal which television broadcasting equipment according to claim 1 sends out. A control signal extract means to extract a print control signal from the above-mentioned video signal to which is the television receiving set which restores to this TV signal to a predetermined video signal and a predetermined sound signal, and reproduces an image and voice, and it received and restored, or the above-mentioned sound signal, A storage means to memorize the above-mentioned video signal for one screen corresponding to this print control signal if this this control signal extract means extracts a print control signal, It is characterized by having a data-conversion means to change into the data suitable for printing the above-mentioned video signal memorized by this storage means, and a print means to print the data changed with this data-conversion means on the predetermined recording paper.

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OPERATION

[Function] In the television broadcasting equipment according to claim 1 constituted as mentioned above, the TV signal with which a TV signal generation means consists of a video signal and a sound signal is generated, and, on the other hand, a control signal generation means generates the print control signal for directing a print to the receiving side of a TV signal. And a control signal addition means makes equivalent to either the video signal which constitutes a TV signal, or a sound signal the video signal of the screen which should be printed, and superimposes a print control signal on it. And a transmitting means modulates the TV signal with which it did in this way and was superimposed on the print control signal, and is transmitted.

[0011] Moreover, in a television receiving set according to claim 2, the TV signal which television broadcasting equipment according to claim 1 transmits is received, it restores to this TV signal to a predetermined video signal and a predetermined sound signal, and an image and voice are reproduced. If a control signal extract means extracts a print control signal from the video signal to which it restored, or a sound signal at this time, when a storage means incorporates and memorizes the video signal for one screen corresponding to a print control signal, and a data-conversion means changes this memorized video signal into the data suitable for printing and will supply it to a print means, a print means prints the changed data on the predetermined recording paper.

[0012] That is, by making television broadcasting equipment correspond to the video signal of one predetermined screen, and superimposing a print control signal on a TV signal, by detecting the print control signal on which the TV signal was overlapped, a television receiving set incorporates the corresponding video signal for one predetermined screen, and prints it on the predetermined recording paper.

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EXAMPLE

[Example] The example of this invention is explained with a drawing below. The television broadcasting system of an example consists of television broadcasting equipment 2 which broadcasts various programs as shown in drawing 2 , and many and unspecified television receiving sets 4 which receive the broadcast from television broadcasting equipment.

[0014] Among these, as television broadcasting equipment 2 is shown in drawing 3 , the tape for broadcast into which the program was recorded on videotape and edited beforehand is played. With the video tape recorder (VTR) 10 which outputs the time code TC used for a sound signal SS, a video signal VS, edit, etc., the sound signal SS outputted from VTR10, and a video signal VS The subcarrier of a predetermined intermediate frequency, respectively FM modulation (in the case of a sound signal SS), and the signal modulation section 12 which carries out amplitude modulation (in the case of a video signal VS), The frequency-conversion section 14 which changes the modulated signal into predetermined transmit frequencies, The transmitting section 16 which compounds these signals after magnification, respectively and outputs from an antenna the sound signal SS changed into transmit frequencies, and a video signal VS, The control signal generation section 18 which will output the predetermined print control signal PC if in agreement with the code value to which the time code TC outputted from VTR10 was set beforehand, It is constituted by the control signal superposition section 20 which superimposes the print control signal PC which the control signal generation section 18 outputted on a video signal VS.

[0015] Thus, with the constituted television broadcasting equipment 2, if the tape for broadcast is played with VTR10 and a video signal VS and a sound signal SS are outputted from VTR10, after the signal for transmission becomes irregular and frequency conversion of these signals is carried out to the frequency for transmission, respectively, they will be amplified further, will be compounded and will be outputted from an antenna.

[0016] Predetermined code value is beforehand set to the control signal generation section 18 here, and if in agreement with the code value with which the time code TC which the tape for broadcast is played with VTR10, and is outputted from VTR10 was set as the control signal generation section 18, the control signal generation section 18 will output the print control signal PC. And the control signal superposition section 20 superimposes the print control signal PC which the control signal generation section 18 outputted on the part of the vertical blanking interval of a video signal VS.

[0017] That is, the code value of the control signal generation section 18 is set up so that the print control signal PC may be generated to timing on which it is superimposed at the vertical blanking interval which appears just before an image to make it print on a receiving side. Thereby, from television broadcasting equipment 2, the TV signal which consists of a video signal VS with which it was superimposed on the sound signal SS and the print control signal PC is outputted.

[0018] With the receive section 22 which, on the other hand, receives the TV signal from television broadcasting equipment 2 through an antenna as the television receiving set 4 is shown in drawing 1 While restoring to the frequency-conversion section 24 which changes the frequency of the received signal into an intermediate frequency, and the signal changed into the intermediate frequency The signal recovery section 26 divided into a sound signal SS and a video signal VS, and the voice playback section 28 which makes Loudspeaker SP pronounce the voice reproduced based on the sound signal SS to which it restored, The image reproduction section 30 which extracts a synchronizing signal SYN, a luminance signal, and a chrominance signal, respectively, and projects the image reproduced based on the these-extracted signal on Braun-tube DSP from the video signal VS to which it restored, The control signal extract section 32 which extracts the print control signal PC on which the video signal VS was overlapped, The control signal generating section 34 which generates the independent print control signal PCr according to external actuation of TV remote control etc., The circuit changing switch 36 which changes print control signal PC/PCr from the control signal extract section 32 or the control signal generating section 34 to arbitration by external actuation, and outputs it, The buffer 38 which incorporates and memorizes the video signal VS for one screen according to print control signal PC/PCr outputted through a circuit changing switch 36, It is constituted by the data-conversion section 40 which is beginning to read the video signal VS memorized by the buffer 38 one by one, and is changed into the data for a print, and the printer 42 which prints an image in a predetermined record form based on the data which the data-conversion section 40 outputs.

[0019] Here, if the control signal extract section 32 detects the vertical blanking interval of a video signal VS based on the synchronizing signal SYN extracted from a video signal VS in the video-signal playback section 30 and is superimposed on the print control signal PC at this vertical blanking interval, it will extract this print control signal PC, and will output it as a timing signal which operates a buffer 38.

[0020] Moreover, since the rate to which a video signal VS is sent is earlier than processing of the data-conversion section 40 and a printer 42, a buffer 38 is for absorbing this speed difference, and even when the print control signal PC occurs continuously, it has the storage capacity for two or more screens so that take a video signal VS and it may not be spilt.

[0021] Next, when the data-conversion section 40 interpolates or operates the scanning line and a pixel on a curtailed schedule, processing which increases or decreases the number of the scanning line and the number of pixels per 1 scanning line according to the specification of a printer 42 may be performed, after the video signal VS for one screen is incorporated by the buffer 38, actuation may

be started, and a buffer 38 may operate in parallel with the actuation which incorporates a video signal VS.

[0022] Moreover, it is also possible whether a circuit changing switch 36 makes it an invalid whether to confirm the print control signal PC from the control signal extract section 32 and the print control signal PCr from the control signal generating section 34, that a setup is made independently possible, respectively and both are also confirmed and to also confirm only either, and to make both into an invalid further.

[0023] Thus, in the constituted television receiving set 4, the TV signal which the receive section 22 received through the antenna is changed into an intermediate frequency from transmit frequencies in the frequency-conversion section 24, and it separates into a sound signal SS and a video signal VS in the signal recovery section 26 further, and restores to it. And while the voice playback section 28 reproduces voice based on the sound signal SS to which it restored and makes it pronounce from Loudspeaker SP, the image reproduction section 30 reproduces an image based on the video signal VS to which it restored, and projects on Braun-tube DSP.

[0024] If the control signal extract section 32 extracts the print control signal PC on which the video signal VS was overlapped at this time, or the control signal generating section 34 generates the print control signal PCr according to external actuation and one of print control signal PC/PCr is sent to a buffer 38 through a circuit changing switch 36, a buffer 38 will incorporate the video signal VS for one screen. Then, the data-conversion section 40 reads the video signal VS incorporated by the buffer 38 one by one, changes into the data suitable for a printer 42, and sends out to a printer 42. And a printer 42 prints the image for one screen on printing paper based on the sent data.

[0025] For example, in television broadcasting equipment 2, when broadcasting programs, such as TV shopping, from television broadcasting equipment 2, the code value of the control signal generation section 18 is set up so that it may be superimposed on the print control signal PC at the vertical-retrace-line period which appears just before the video signal VS of the part which generates the screen where the screen including the information with which a viewer should be provided, i.e., the image of an article, the name of an article, the price, the application place, etc. were displayed. And the tape for broadcast is played with VTR10, and a TV signal is sent out after superimposing the print control signal PC on a video signal VS.

[0026] If the circuit changing switch 36 is set up in the television receiving set 4 so that the print control signal PC from the control signal extract section 32 may be supplied to a buffer 38, whenever the print control signal PC will be detected on the other hand, without others also taking actuation of what, the image with which required information was automatically displayed from the printer 42 is printed out.

[0027] As mentioned above, as explained in full detail, in the television broadcasting system of this example, television broadcasting equipment 2 is made to print out one screen of an image by superimposing the print control signal PC on a video signal VS, transmitting, and extracting the print control signal PC from the received video signal VS in the television receiving set 4 by the printer 42 automatically.

[0028] Therefore, by according to this example, making the screen on which information to provide a viewer with television broadcasting equipment 2 was displayed correspond, and superimposing and sending out the print control signal PC to a video signal VS It can leave information to offer moreover to a viewer as record certainly, without being able to make the printer 42 of the television receiving set 4 print out the meant screen automatically, and troubling a viewer's hand.

[0029] Moreover, in this example, when the print control signal PC which is superimposed by the video signal VS and transmitted to it from television broadcasting equipment 2 with a circuit changing switch 36, and a viewer operate it, it can be made to do the print control signal PCr generated in arbitration in independently effective respectively or an invalid.

[0030] Therefore, when the print-out which followed the print control signal PC from television broadcasting equipment 2 is not needed, an unnecessary thing is not vainly printed by setting up so that a circuit changing switch 36 may be operated and the print control signal PC may become invalid.

[0031] Moreover, since arbitration can be made to generate the print control signal PCr when a viewer operates it, it cannot be based on the print control signal PC from television broadcasting equipment 2, but a desired image can be printed out. In this example, furthermore, the television receiving set 4 Since one screen which a broadcast side means can be incorporated correctly and can be printed out For example, by inserting the video signal VS for one screen which is completely unrelated to the image under broadcast, and making the television receiving set 4 print out this one inserted screen with television broadcasting equipment 2 It is also possible to provide a viewer with the screen (information) which is completely unrelated to the image to which it is viewed and listened. I am not noticed by the viewer who is looking at the image even if the image which is unrelated by one of screens of this is displayed, since it is got blocked, for example, the scan for 30 screens is performed per second on television of NTSC system.

[0032] As mentioned above, although one example of this invention was explained, this invention is not limited to the above-mentioned example, and can be carried out in various modes in the range which does not deviate from the summary of this invention. For example, in the above-mentioned example, although the print control signal PC is superimposed on the part of the vertical blanking interval of a video signal VS, it may superimpose on the part of the horizontal blanking interval of a video signal VS, or the channel for the subsond signals of sound multiplex broadcasting etc. may be used.

[0033] Moreover, in case the video signal VS and sound signal SS which play the tape for broadcast and are acquired in the above-mentioned example are transmitted as a TV signal, the time code TC outputted from VTR10 synchronizing with a video signal VS is used. Although the print control signal PC is superimposed on the video signal VS to the predetermined timing corresponding to a screen to make it print on a receiving side At the time of edit of the tape for broadcast, the print control signal PC is beforehand superimposed and recorded on the video signal VS. At the time of broadcast You may make it transmit the video signal VS and sound signal SS with which this tape for broadcast was superimposed on the print control signal PC reproduced and acquired as a TV signal as it is.

[0034] Furthermore, like the image transcription reservation of video to the television receiving set 4, the program reservation means for reserving the program which memorizes broadcasting hours and the channel of a program and is received is established, and it may be made to carry out auto-receipt of the TV signal of the program reserved based on the contents memorized for the program reservation means. In this case, if the TV signal which carried out auto-receipt is overlapped on the print control signal PC, since an

image will also be automatically printed according to it, even if a viewer overlooks a program, he can get required information certainly. [0035] Moreover, although the above-mentioned example explained the example which applied this invention to the television broadcasting system by which a TV signal is transmitted and received by wireless, cable television (CATV) etc. may be applied to the television broadcasting system by which a TV signal is transmitted and received by the cable.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is a block diagram showing the outline configuration of the television receiving set in the television broadcasting system of an example.

[Drawing 2] It is the schematic diagram of the television broadcasting system of an example.

[Drawing 3] It is a block diagram showing the outline configuration of the television broadcasting equipment in the television broadcasting system of an example.

[Description of Notations]

2 — Television broadcasting equipment 4 — Television receiving set
10 — Video tape recorder (VTR) 12 — Signal modulation section
14 — Frequency-conversion section 16 — Transmitting section 18 — Control signal generation section
20 — Control signal superposition section 22 — Receive section 24 — Frequency-conversion section
26 — Signal recovery section 28 — Voice playback section 30 — Image reproduction section
32 — Control signal extract section 34 — Control signal generating section 36 — Circuit changing switch
38 — Buffer 40 — Data-conversion section 42 — Printer

[Translation done.]

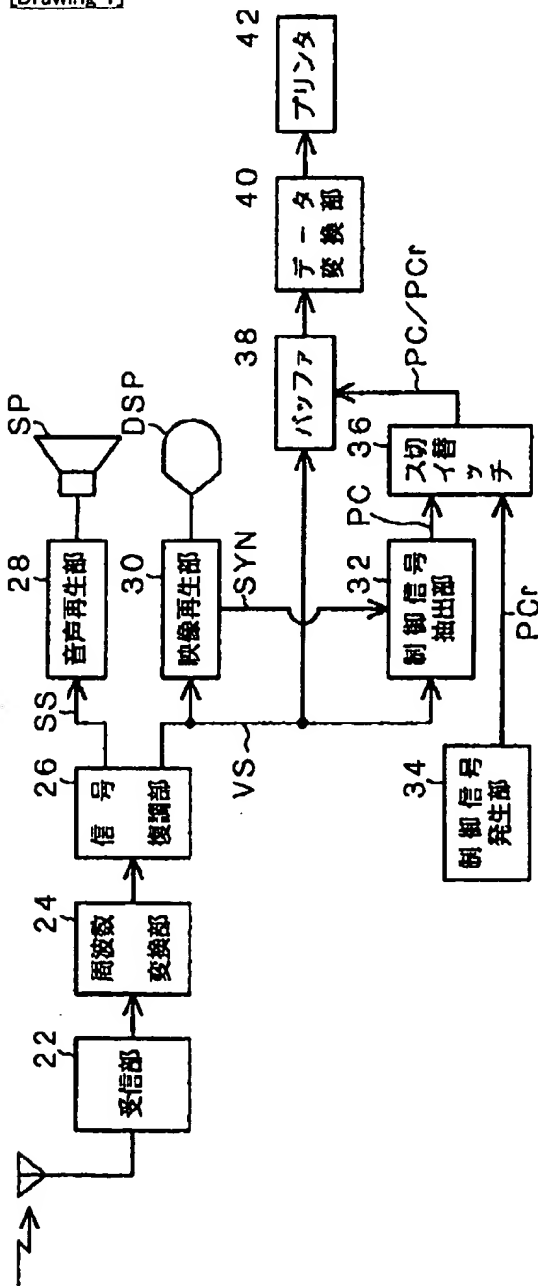
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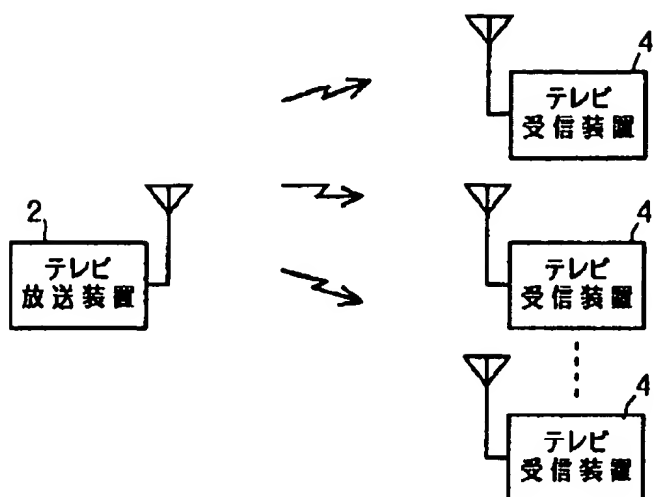
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DRAWINGS

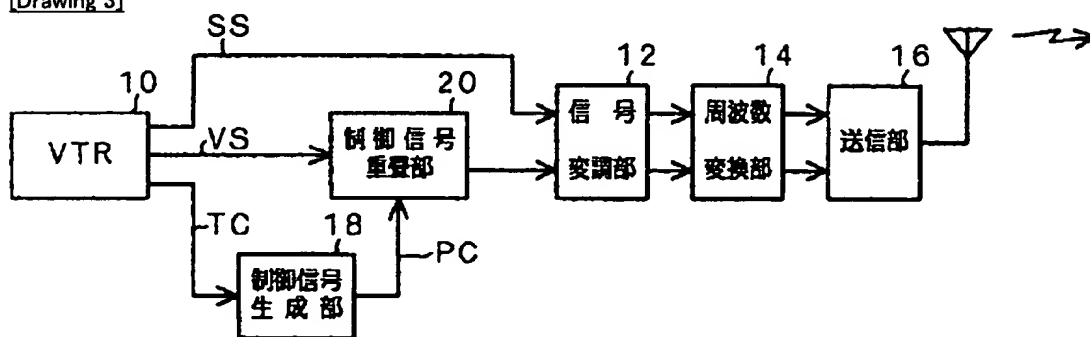
[Drawing 1]



[Drawing 2]



[Drawing 3]



[Translation done.]

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- 3.In the drawings, any words are not translated.

CORRECTION OR AMENDMENT

[Kind of official gazette] Printing of amendment by the convention of 2 of Article 17 of Patent Law
 [Section partition] The 3rd partition of the 7th section
 [Publication date] November 4, Heisei 10 (1998)

[Publication No.] Publication number 8-116520
 [Date of Publication] May 7, Heisei 8 (1996)
 [Annual volume number] Open patent official report 8-1166
 [Application number] Japanese Patent Application No. 6-250741
 [International Patent Classification (6th Edition)]

H04N 7/08
 7/081
 5/76
 5/91

[FI]

H04N 7/08 Z
 5/76 E
 5/91 H

[Procedure revision]

[Filing Date] April 22, Heisei 9

[Procedure amendment 1]

[Document to be Amended] Specification

[Item(s) to be Amended] The name of invention

[Method of Amendment] Modification

[Proposed Amendment]

[Title of the Invention] Broadcast equipment and a receiving set

[Procedure amendment 2]

[Document to be Amended] Specification

[Item(s) to be Amended] Claim

[Method of Amendment] Modification

[Proposed Amendment]

[Claim(s)]

[Claim 1] A signal generation means to generate a signal including a video signal,

A transmitting means to modulate the signal generated with this signal generation means, and to transmit,

In preparation ***** equipment,

A control signal generation means to generate the print control signal for directing a print,

A control signal addition means to make equivalent to the signal which the above-mentioned signal generation means generates the video signal of the screen which should be printed, and to superimpose the above-mentioned print control signal on it,

a **** beam — the broadcast equipment characterized by things.

[Claim 2] It is the receiving set which receives the signal which broadcast equipment according to claim 1 sends out, restores to this signal to a predetermined video signal etc., and reproduces an image etc.,

A control signal extract means to extract a print control signal from the above-mentioned signal to which it received and restored,

A storage means to memorize the above-mentioned video signal of the screen corresponding to this print control signal if this control signal extract means extracts a print control signal,

A data-conversion means to change into the data suitable for printing the above-mentioned video signal memorized by this storage means,

A print means to print the data changed with this data-conversion means on the predetermined recording paper,

The receiving set characterized by preparation *****.

[Procedure amendment 3]

[Document to be Amended] Specification

[Item(s) to be Amended] 0001

[Method of Amendment] Modification

[Proposed Amendment]

[0001]

[Industrial Application] This invention relates to the receiving set on which a desired image can be made to print by the receiving side, and the suitable broadcast equipment for this.

[Procedure amendment 4]

[Document to be Amended] Specification

[Item(s) to be Amended] 0007

[Method of Amendment] Modification

[Proposed Amendment]

[0007] This invention aims at offering broadcast equipment and a receiving set with possible making the screen where required information was displayed print on a receiving side certainly, in order to solve the above-mentioned trouble.

[Procedure amendment 5]

[Document to be Amended] Specification

[Item(s) to be Amended] 0008

[Method of Amendment] Modification

[Proposed Amendment]

[0008]

[Means for Solving the Problem] Invention according to claim 1 made in order to attain the above-mentioned purpose is characterized by having the following. A signal generation means to generate a signal including a video signal A transmitting means to modulate the signal generated with this signal generation means, and to transmit A control signal addition means to make equivalent to the signal which a control signal generation means to generate the print control signal for directing a print in preparation ***** equipment, and the above-mentioned signal generation means generate the video signal of the screen which should be printed, and to superimpose the above-mentioned print control signal on it

[Procedure amendment 6]

[Document to be Amended] Specification

[Item(s) to be Amended] 0009

[Method of Amendment] Modification

[Proposed Amendment]

[0009] Moreover, invention according to claim 2 receives the signal which broadcast equipment according to claim 1 sends out. A control signal extract means to extract a print control signal from the above-mentioned signal to which is the receiving set which restores to this signal to a predetermined video signal etc., and reproduces an image etc., and it received and restored, A storage means to memorize the above-mentioned video signal of the screen corresponding to this print control signal if this control signal extract means extracts a print control signal, It is characterized by having a data-conversion means to change into the data suitable for printing the above-mentioned video signal memorized by this storage means, and a print means to print the data changed with this data-conversion means on the predetermined recording paper.

[Procedure amendment 7]

[Document to be Amended] Specification

[Item(s) to be Amended] 0010

[Method of Amendment] Modification

[Proposed Amendment]

[0010]

[Function] In the broadcast equipment according to claim 1 constituted as mentioned above, a signal generation means generates a signal including a video signal, and, on the other hand, a control signal generation means generates the print control signal for directing a print to the receiving side of a signal. And a control signal addition means makes equivalent to the signal which a signal generation means generates the video signal of the screen which should be printed, and superimposes a print control signal on it. And a transmitting means modulates the signal with which it did in this way and was superimposed on the print control signal, and is transmitted.

[Procedure amendment 8]

[Document to be Amended] Specification

[Item(s) to be Amended] 0011

[Method of Amendment] Modification

[Proposed Amendment]

[0011] Moreover, in a receiving set according to claim 2, the signal which broadcast equipment according to claim 1 transmits is received, it restores to this signal to a predetermined video signal etc., and an image etc. is reproduced. If a control signal extract means extracts a print control signal from the signal to which it restored at this time, when a storage means incorporates and memorizes the video signal of the screen corresponding to a print control signal, and a data-conversion means changes this memorized video signal into the data suitable for printing and will supply it to a print means, a print means prints the changed data on the predetermined recording paper.

[Procedure amendment 9]

[Document to be Amended] Specification

[Item(s) to be Amended] 0012

[Method of Amendment] Modification

[Proposed Amendment]

[0012] That is, by superimposing on the signal which broadcast equipment is made to correspond to the video signal of a predetermined screen, and transmits a print control signal, by detecting the print control signal on which the received signal was overlapped, a receiving set incorporates the video signal of a corresponding predetermined screen, and prints it on the predetermined recording paper.

[Procedure amendment 10]

[Document to be Amended] Specification

[Item(s) to be Amended] 0036

[Method of Amendment] Modification

[Proposed Amendment]

[0036]

[Effect of the Invention] As explained above, in broadcast equipment according to claim 1, the signal (a video signal is included) to transmit is overlapped on the print control signal for making a predetermined image print on a receiving side, and it is transmitted to it. By, receiving the signal which broadcast equipment according to claim 1 transmits in a receiving set according to claim 2 on the other hand, and extracting the print control signal on which this signal was overlapped, a corresponding video signal is incorporated and a predetermined image is printed on printing paper.

[Procedure amendment 11]

[Document to be Amended] Specification

[Item(s) to be Amended] 0037

[Method of Amendment] Modification

[Proposed Amendment]

[0037] Therefore, if broadcast equipment and a receiving set according to claim 2 according to claim 1 are used, the provider of a program can leave to a viewer certainly the screen where information to provide a viewer was displayed as record printed by printing paper, without troubling a viewer's hand.

[Procedure amendment 12]

[Document to be Amended] Specification

[Item(s) to be Amended] 0038

[Method of Amendment] Modification

[Proposed Amendment]

[0038] Moreover, like equipment before, since required information is automatically printed in a receiving set, when [at which hard copy of the screen is carried out by manual operation] required information copies out on a screen, the seat is removed, the timing to operate is bad, and does not go wrong [information cannot be incorporated, or], and, as for a viewer, information is acquired certainly.

[Procedure amendment 13]

[Document to be Amended] Specification

[Item(s) to be Amended] 0039

[Method of Amendment] Modification

[Proposed Amendment]

[0039] Furthermore, since the image information for making it print on a receiving set is using the video signal, it does not need to create the image information only for prints separately like facsimile broadcasting, and can offer information easily.

[Translation done.]

(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平8-116520

(43) 公開日 平成8年(1996)5月7日

(51) Int.Cl.⁶

識別記号

庁内整理番号

F I

技術表示箇所

H 0 4 N 7/08
7/081
5/76

E

H 0 4 N 7/08
5/91Z
H

審査請求 未請求 請求項の数 2 O L (全 7 頁) 最終頁に続く

(21) 出願番号 特願平6-250741

(22) 出願日 平成6年(1994)10月17日

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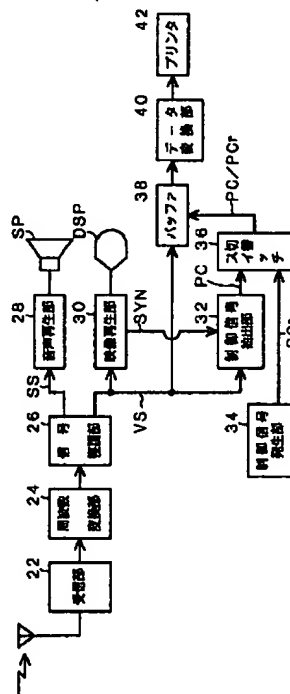
(74) 代理人 弁理士 足立 勉

(54) 【発明の名称】 テレビ放送装置およびテレビ受信装置

(57) 【要約】

【目的】 必要な情報が表示された画面を確実に受信側にプリントさせることが可能なテレビ放送装置およびテレビ受信装置を提供する。

【構成】 テレビ放送装置2からのテレビ信号をアンテナを介して受信し、音声と映像を再生するテレビ受信装置4は、更に、テレビ放送装置2にて映像信号VSに重畳されたプリント制御信号PCを抽出する制御信号抽出部32と、この抽出されたプリント制御信号PCに応じて、対応する1画面分の映像信号VSを取り込むバッファ38と、バッファ38に取り込まれた映像信号VSを順次読み出してプリント用のデータに変換するデータ変換部40と、データ変換部40が出力するデータに基づいて所定の記録用紙に画像を印刷するプリンタ42とを備える。放送局側で、受信側にプリントさせたい画面に対応させてプリント制御信号PCをテレビ信号に重畳すれば、その画面は確実に受信側でプリントされる。



【特許請求の範囲】

【請求項1】 映像信号と音声信号とからなるテレビ信号を生成するテレビ信号生成手段と、
該テレビ信号生成手段にて生成されたテレビ信号を変調し送信する送信手段と、
を備えたテレビ放送装置において、
プリントを指示するためのプリント制御信号を生成する制御信号生成手段と、
上記テレビ信号を構成する映像信号あるいは音声信号のいずれかに、プリントすべき画面の映像信号に対応させて上記プリント制御信号を重畳する制御信号付加手段と、
を設けたことを特徴とするテレビ放送装置。

【請求項2】 請求項1に記載のテレビ放送装置が送出するテレビ信号を受信し、該テレビ信号を所定の映像信号と音声信号とに復調して映像および音声を再生するテレビ受信装置であって、
受信し復調した上記映像信号あるいは上記音声信号からプリント制御信号を抽出する制御信号抽出手段と、
該制御信号抽出手段がプリント制御信号を抽出すると、
該プリント制御信号に対応する1画面分の上記映像信号を記憶する記憶手段と、
該記憶手段に記憶された上記映像信号を、印刷に適したデータに変換するデータ変換手段と、
該データ変換手段にて変換されたデータを所定の記録紙にプリントするプリント手段と、
を備えたことを特徴とするテレビ受信装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、所望の画像を受信側でプリントさせることができるテレビ受信装置と、これに好適なテレビ放送装置に関する。

【0002】

【従来の技術】従来より、視聴者の操作に応じて所望のテレビ画面をプリントアウトする装置が知られている。この装置は、例えば、テレビショッピング等で、申し込み先などが画面に表示された時に、その画面をプリントアウトすれば、いちいちメモする必要がなく、しかもその内容を正確に記録することができる。

【0003】

【発明が解決しようとする課題】しかし、この装置では、常にテレビ画面を見ていて、必要な情報が画面に表示された時には、即座にプリントアウトのための操作をしなければならず、例えば、電話や来客等により席をはずすと、必要な情報を得ることができなくなるという問題や、操作のタイミングが遅れると、画面が変わってしまい、必要な情報が得られないだけでなく、無用な画面がプリントされてしまうという問題があった。

【0004】一方では、例えば特開昭60-203063号公報に開示されているように、テレビ信号にファク

シミリ信号を重畳し、受信側で重畳されたファクシミリ信号を分離してプリントアウトする装置、所謂ファクシミリ放送の受信装置も知られている。

【0005】この装置をテレビショッピング等に利用した場合、テレビ局側が、必要な情報を全てファクシミリ信号により送信するようにすれば、視聴者は、ファクシミリ受信器を用意しておくことにより、テレビ局が用意した情報を、プリントアウトして記録に残すことができる。

【0006】しかし、この装置は、テレビ画面と同じ画像を映像信号を用いてプリントするのではなく、映像信号とは別に用意されたファクシミリ信号を用いてプリントを行なうため、テレビ局側は、映像信号とファクシミリ信号という2種類の信号を用意しなければならず、手間がかかるという問題があった。

【0007】本発明は、上記問題点を解決するために、必要な情報が表示された画面を確実に受信側にプリントさせることが可能なテレビ放送装置およびテレビ受信装置を提供することを目的とする。

【0008】

【課題を解決するための手段】上記目的を達成するためになされた請求項1に記載の発明は、映像信号と音声信号とからなるテレビ信号を生成するテレビ信号生成手段と、該テレビ信号生成手段にて生成されたテレビ信号を変調し送信する送信手段と、を備えたテレビ放送装置において、プリントを指示するためのプリント制御信号を生成する制御信号生成手段と、上記テレビ信号を構成する映像信号あるいは音声信号のいずれかに、プリントすべき画面の映像信号に対応させて上記プリント制御信号を重畳する制御信号付加手段と、を設けたことを特徴とする。

【0009】また、請求項2に記載の発明は、請求項1に記載のテレビ放送装置が送出するテレビ信号を受信し、該テレビ信号を所定の映像信号と音声信号とに復調して映像および音声を再生するテレビ受信装置であって、受信し復調した上記映像信号あるいは上記音声信号からプリント制御信号を抽出する制御信号抽出手段と、該制御信号抽出手段がプリント制御信号を抽出すると、該プリント制御信号に対応する1画面分の上記映像信号を記憶する記憶手段と、該記憶手段に記憶された上記映像信号を、印刷に適したデータに変換するデータ変換手段と、該データ変換手段にて変換されたデータを所定の記録紙にプリントするプリント手段と、を備えたことを特徴とする。

【0010】

【作用】上記のように構成された請求項1に記載のテレビ放送装置においては、テレビ信号生成手段が、映像信号と音声信号とからなるテレビ信号を生成し、一方で、制御信号生成手段が、テレビ信号の受信側にプリントを指示するためのプリント制御信号を生成する。そし

て、制御信号付加手段が、プリント制御信号を、テレビ信号を構成する映像信号あるいは音声信号のいずれかに、プリントすべき画面の映像信号に対応させて重畳する。そして送信手段は、このようにしてプリント制御信号が重畳されたテレビ信号を変調し送信する。

【0011】また、請求項2に記載のテレビ受信装置においては、請求項1に記載のテレビ放送装置が送信するテレビ信号を受信し、該テレビ信号を所定の映像信号と音声信号とに復調して映像および音声再生する。この時、制御信号抽出手段が、復調された映像信号あるいは音声信号からプリント制御信号を抽出すると、記憶手段は、プリント制御信号に対応する1画面分の映像信号を取り込んで記憶し、データ変換手段が、この記憶された映像信号を、印刷に適したデータに変換してプリント手段に供給することにより、プリント手段は、変換されたデータを所定の記録紙にプリントする。

【0012】つまり、テレビ放送装置は、所定の1画面の映像信号に対応させてプリント制御信号をテレビ信号に重畳し、テレビ受信装置は、テレビ信号に重畳されたプリント制御信号を検出することにより、対応する所定の1画面分の映像信号を取り込んで所定の記録紙にプリントする。

【0013】

【実施例】以下に本発明の実施例を図面と共に説明する。実施例のテレビ放送システムは、図2に示すように各種番組を放送するテレビ放送装置2と、テレビ放送装置からの放送を受信する不特定多数のテレビ受信装置4とからなる。

【0014】このうち、テレビ放送装置2は、図3に示すように、予め放送番組が録画され編集された放送用テープを再生し、音声信号SS、映像信号VS、編集等に使用されるタイムコードTCを出力するビデオテープレコーダ(VTR)10と、VTR10より出力される音声信号SSおよび映像信号VSで、夫々所定の中間周波数の搬送波をFM変調(音声信号SSの場合)、振幅変調(映像信号VSの場合)する信号変調部12と、変調された信号を所定の送信周波数に変換する周波数変換部14と、送信周波数に変換された音声信号SSおよび映像信号VSを夫々増幅後これらの信号を合成してアンテナより出力する送信部16と、VTR10より出力されるタイムコードTCが、予め設定されたコード値と一致すると所定のプリント制御信号PCを出力する制御信号生成部18と、制御信号生成部18が出力したプリント制御信号PCを映像信号VSに重畳する制御信号重畳部20とにより構成されている。

【0015】このように構成されたテレビ放送装置2では、VTR10にて放送用テープが再生されて、VTR10から映像信号VSおよび音声信号SSが出力されると、これらの信号は夫々送信用信号に変調され、送信用周波数に周波数変換された後、更に増幅され合成されて

アンテナから出力される。

【0016】ここで制御信号生成部18には、所定のコード値が予め設定されており、VTR10にて放送用テープが再生されVTR10より出力されるタイムコードTCが制御信号生成部18に設定されたコード値に一致すると、制御信号生成部18はプリント制御信号PCを出力する。そして、制御信号重畳部20が、制御信号生成部18が出力したプリント制御信号PCを映像信号VSの垂直帰線消去期間の部分に重畳する。

【0017】即ち、制御信号生成部18のコード値は、受信側にプリントさせたい映像の直前に表れる垂直帰線消去期間に重畳されるようなタイミングでプリント制御信号PCが生成されるように設定される。これにより、テレビ放送装置2からは、音声信号SSと、プリント制御信号PCが重畳された映像信号VSとからなるテレビ信号が出力される。

【0018】一方、テレビ受信装置4は、図1に示すように、テレビ放送装置2からのテレビ信号をアンテナを介して受信する受信部22と、受信した信号の周波数を中間周波数に変換する周波数変換部24と、中間周波数に変換された信号を復調すると共に、音声信号SSと映像信号VSとに分離する信号復調部26と、復調された音声信号SSに基づき再生した音声をスピーカSPに発音させる音声再生部28と、復調された映像信号VSから同期信号SYN、輝度信号、色信号を夫々抽出し、これら抽出した信号に基づき再生した映像をブラウン管DSPに映し出す映像再生部30と、映像信号VSに重畳されたプリント制御信号PCを抽出する制御信号抽出部32と、テレビのリモコン等の外部操作に応じて自前のプリント制御信号PCrを発生する制御信号発生部34と、制御信号抽出部32あるいは制御信号発生部34からのプリント制御信号PC/PCrを外部操作により任意に切り替えて出力する切替スイッチ36と、切替スイッチ36を介して出力されるプリント制御信号PC/PCrに応じて1画面分の映像信号VSを取り込んで記憶するバッファ38と、バッファ38に記憶された映像信号VSを順次読み出してプリント用のデータに変換するデータ変換部40と、データ変換部40が出力するデータに基づいて所定の記録用紙に画像を印刷するプリンタ42とにより構成されている。

【0019】ここで、制御信号抽出部32は、映像信号再生部30にて映像信号VSより抽出される同期信号SYNに基づいて映像信号VSの垂直帰線消去期間を検出し、この垂直帰線消去期間にプリント制御信号PCが重畳されていれば、このプリント制御信号PCを抽出して、バッファ38を動作させるタイミング信号として出力するものである。

【0020】また、バッファ38は、データ変換部40およびプリンタ42の処理より映像信号VSが送られてくる速度が早いので、この速度差を吸収するためのもの

であり、連続してプリント制御信号 P C が発生した場合でも、映像信号 V S を取りこぼすことのないように、複数画面分の記憶容量を有する。

【0021】次に、データ変換部 40 は、例えば、走査線や画素を補間あるいは間引きすることにより、走査線の本数や 1 走査線当りの画素数をプリンタ 42 の仕様に合わせて増加あるいは減少させる処理等を行うものであり、バッファ 38 に 1 画面分の映像信号 V S が取り込まれてから動作を開始してもよいし、バッファ 38 が映像信号 V S を取り込む動作と平行して動作してもよい。

【0022】また、切替スイッチ 36 は、制御信号抽出部 32 からのプリント制御信号 P C および制御信号発生部 34 からのプリント制御信号 P C r を有効にするか無効にするか夫々独立に設定可能にされており、両方とも有効にすることも、また、いずれか一方のみを有効にすることも、更には、両方とも無効にすることも可能である。

【0023】このように構成されたテレビ受信装置 4 において、アンテナを介して受信部 22 が受信したテレビ信号は、周波数変換部 24 にて送信周波数から中間周波数に変換され、更に信号復調部 26 にて音声信号 S S と映像信号 V S とに分離され復調される。そして、音声再生部 28 が、復調された音声信号 S S に基づき音声を再生してスピーカ S P から発音させると共に、映像再生部 30 が、復調された映像信号 V S に基づき映像を再生してブラウン管 D S P に映し出す。

【0024】この時、制御信号抽出部 32 が、映像信号 V S に重畳されたプリント制御信号 P C を抽出するか、制御信号発生部 34 が、外部操作に応じてプリント制御信号 P C r を発生し、いずれかのプリント制御信号 P C / P C r が切替スイッチ 36 を介してバッファ 38 に送られると、バッファ 38 は 1 画面分の映像信号 V S を取り込む。すると、データ変換部 40 が、バッファ 38 に取り込まれた映像信号 V S を順次読み出し、プリンタ 42 に適したデータに変換してプリンタ 42 に送出する。そしてプリンタ 42 は、送られてきたデータに基づき 1 画面分の画像を印刷紙にプリントする。

【0025】例えば、テレビ放送装置 2 からテレビショッピング等の番組を放送する場合、テレビ放送装置 2 においては、視聴者に提供すべき情報を含んだ画面、即ち、品物の映像、品物の名称、値段、申し込み先等が表示された画面を生成する部分の映像信号 V S の直前に表れる垂直帰線期間にプリント制御信号 P C が重畳されるように、制御信号生成部 18 のコード値を設定する。そして、V T R 10 にて放送用テープを再生し、映像信号 V S にプリント制御信号 P C を重畳してからテレビ信号を送出する。

【0026】一方、テレビ受信装置 4 においては、制御信号抽出部 32 からのプリント制御信号 P C がバッファ 38 に供給されるように切替スイッチ 36 を設定してお

けば、他に何の操作も要することなくプリント制御信号 P C が検出される毎に、自動的にプリンタ 42 から必要な情報が表示された画像がプリントアウトされる。

【0027】以上、詳述したように、本実施例のテレビ放送システムにおいては、テレビ放送装置 2 が、プリント制御信号 P C を映像信号 V S に重畳して送信し、テレビ受信装置 4 では、受信した映像信号 V S からプリント制御信号 P C を抽出することにより、自動的に映像の 1 画面をプリンタ 42 にプリントアウトするようにされている。

【0028】従って、本実施例によれば、テレビ放送装置 2 にて、視聴者に提供したい情報が表示された画面に対応させて映像信号 V S にプリント制御信号 P C を重畳して送出することにより、その意図した画面をテレビ受信装置 4 のプリンタ 42 に自動的にプリントアウトさせることができ、視聴者の手を煩わせることなく、しかも提供したい情報を確実に視聴者の手元に記録として残すことができる。

【0029】また、本実施例においては、切替スイッチ 36 により、テレビ放送装置 2 より映像信号 V S に重畳され送信されてくるプリント制御信号 P C、および視聴者が操作することにより任意に発生するプリント制御信号 P C r を、夫々独立に有効あるいは無効にできるようにされている。

【0030】従って、テレビ放送装置 2 からのプリント制御信号 P C に従ったプリントアウトを必要としない時には、切替スイッチ 36 を操作してプリント制御信号 P C が無効となるように設定することにより、必要ないものを無駄に印刷してしまうことがない。

【0031】また、視聴者が操作することにより任意にプリント制御信号 P C r を発生させることができるので、テレビ放送装置 2 からのプリント制御信号 P C によらず、所望の映像をプリントアウトすることができる。また更に、本実施例では、テレビ受信装置 4 は、放送側が意図する 1 画面を正確に取り込んでプリントアウトすることができるので、例えば、テレビ放送装置 2 にて、放送中の映像とは全く関係のない 1 画面分の映像信号 V S を挿入し、テレビ受信装置 4 に、この挿入した 1 画面をプリントアウトさせることにより、視聴される映像とは全く関係のない画面（情報）を視聴者に提供することも可能である。つまり、例えば N T S C 方式のテレビでは、1 秒当たり 30 画面分の走査が行われるため、このうちの 1 画面分だけ関係のない映像が表示されたとしても、映像を見ている視聴者には気づかれることがないのである。

【0032】以上、本発明の一実施例について説明したが、本発明は上記実施例に限定されるものではなく、本発明の要旨を逸脱しない範囲において様々な態様で実施できる。例えば、上記実施例では、プリント制御信号 P C を映像信号 V S の垂直帰線消去期間の部分に重畳して

いるが、映像信号V Sの水平帰線消去期間の部分に重畳したり、音声多重放送の副音声信号用のチャンネル等を利用してよい。

【0033】また、上記実施例では、放送用テープを再生して得られる映像信号V Sと音声信号S Sをテレビ信号として送信する際に、映像信号V Sに同期してV T R 10より出力されるタイムコードT Cを利用して、受信側にプリントさせたい画面に対応した所定のタイミングで映像信号V Sにプリント制御信号P Cを重畳しているが、放送用テープの編集時に、予めプリント制御信号P Cを映像信号V Sに重畳して記録しておき、放送時には、この放送用テープを再生して得られるプリント制御信号P Cが重畳された映像信号V Sと音声信号S Sとをそのままテレビ信号として送信するようにしてもよい。

【0034】更に、テレビ受信装置4に、ビデオの録画予約のように、番組の放送時間やチャンネルを記憶して受信する番組を予約するための番組予約手段を設け、番組予約手段に記憶された内容に基づき予約された番組のテレビ信号を自動受信するようにしてもよい。この場合、自動受信したテレビ信号にプリント制御信号P Cが重畳されていれば、それに応じて映像も自動的にプリントされるので、視聴者は、番組を見逃したとしても、必要な情報を確実に手に入れることができる。

【0035】また、上記実施例では、本発明を、無線によりテレビ信号が送受信されるテレビ放送システムに適用した例について説明したが、ケーブルテレビ(C A T V)等、有線によりテレビ信号が送受信されるテレビ放送システムに適用してもよい。

【0036】

【発明の効果】以上説明したように、請求項1に記載のテレビ放送装置においては、受信側に所定の画像をプリントさせるためのプリント制御信号が、テレビ信号(映像信号あるいは音声信号)に重畳され送信される。一方、請求項2に記載のテレビ受信装置においては、請求項1に記載のテレビ放送装置が送信するテレビ信号を受信して、テレビ信号に重畳されたプリント制御信号を抽出することにより、対応する映像信号を取り込んで所定の画像を印刷紙にプリントする。

【0037】従って、請求項1に記載のテレビ放送装置と請求項2に記載のテレビ受信装置を用いれば、放送番組の提供者は、視聴者に提供したい情報が表示された画面を、視聴者の手を煩わせることなく、印刷紙に印刷された記録として確実に視聴者の手元に残すことができる。

【0038】また、テレビ受信装置において必要な情報は自動的にプリントされるため、手動操作で画面をハードコピーする従来装置のように、必要な情報が画面に写しだされた時に席をはずしていて情報を取り込むことができなかったり、操作するタイミングが悪くて失敗したりすることがなく、視聴者は確実に情報が得られる。

【0039】更に、テレビ受信装置にプリントさせるための画像情報は、映像信号を使用しているため、ファクシミリ放送のように別途プリント専用の画像情報を作成する必要がなく、容易に情報を提供することができる。

【図面の簡単な説明】

【図1】 実施例のテレビ放送システムにおけるテレビ受信装置の概略構成を表すブロック図である。

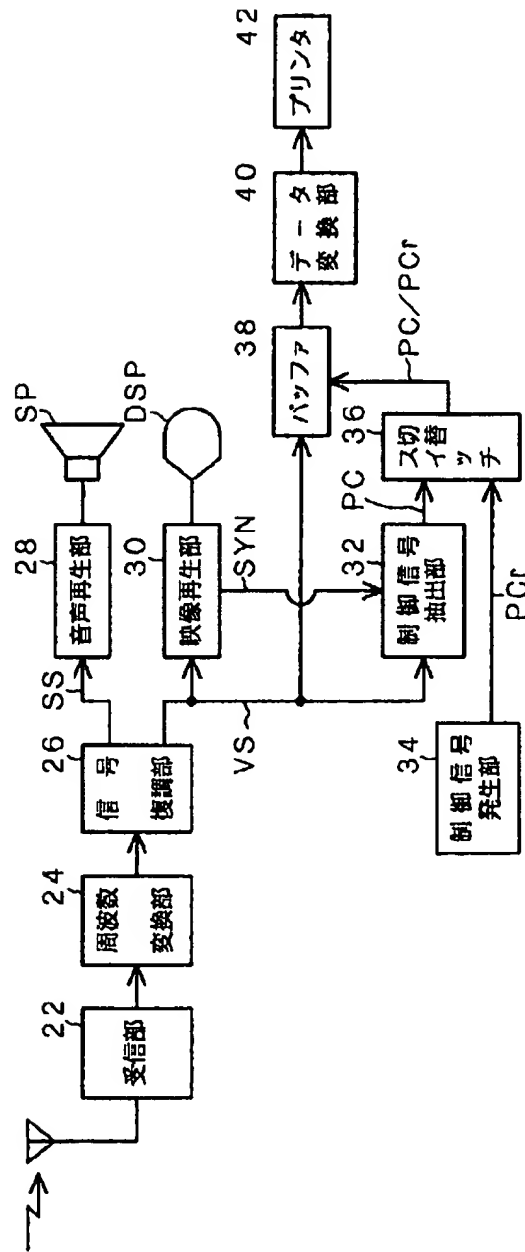
【図2】 実施例のテレビ放送システムの概要図である。

【図3】 実施例のテレビ放送システムにおけるテレビ放送装置の概略構成を表すブロック図である。

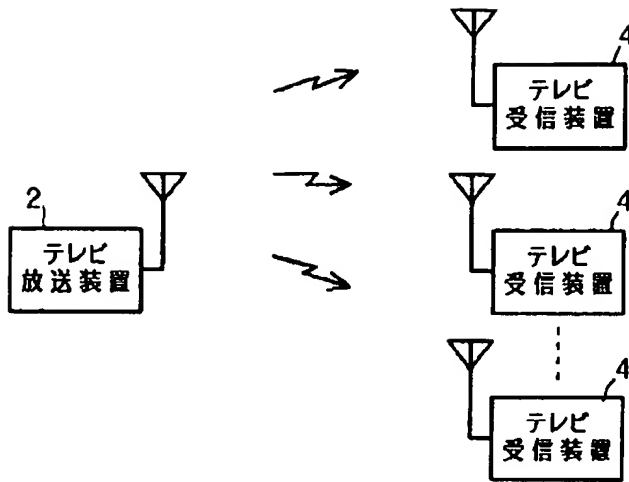
【符号の説明】

2…テレビ放送装置	4…テレビ受信装置
10…ビデオテープレコーダ(V T R)	12…信号変調部
14…周波数変換部	16…送信部
18…制御信号生成部	
20…制御信号重畳部	22…受信部
24…周波数変換部	26…信号復調部
28…音声再生部	30…映像再生部
32…制御信号抽出部	34…制御信号発生部
36…切替スイッチ	
38…バッファ	40…データ変換部
42…プリンタ	

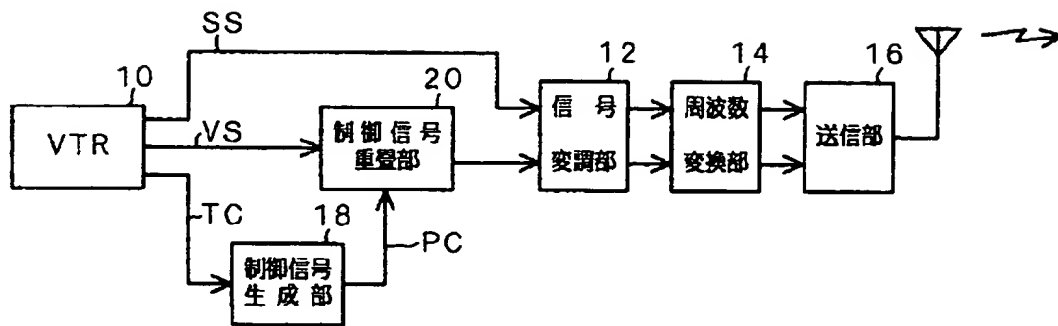
【図1】



【図2】



【図3】



フロントページの続き

(51)Int.Cl.⁶
H04N 5/91

識別記号 庁内整理番号 F I

技術表示箇所